

AMENDMENTS TO THE DRAWINGS

The attached sheets of drawings includes changes to Figs. 1, 3 and 9. These sheets (1/9, 3/9 and 9/9) replace the original sheets including Figs. 1, 3 and 9. Applicant noted typographical errors in Figs. 1 and 3 which have been corrected by the attached replacement sheets.

REMARKS/ARGUMENTS

Claims 1-15 stand rejected in the outstanding Official Action. However, as indicated by the filing receipt mailed April 25, 2002, Applicants filed the application with a total of 16 claims, three of which were independent. Since the Examiner indicated in section 15 of the Official Action that claim 16 was considered and rejected, it is assumed that the reference to claims 1-15 in the Office Action Summary Sheet is a typographical error and the Examiner indeed intended to reject all of claims 1-16. Claims 1, 5, 15 and 16 have been amended and therefore claims 1-16 remain in this application.

The Examiner's acknowledgment of Applicants' claim for foreign priority and receipt of the certified copies of the priority documents is appreciated. Additionally, the Examiner's consideration and initialing of Applicants' previously submitted Information Disclosure Statement is appreciated.

The specification is objected to, with the Examiner alleging that the title is not descriptive. Applicants have adopted the Examiner's suggested title in the above amendment and therefore any further objection to the title of the application is respectfully traversed.

In sections 6 and 7 of the Official Action, the drawings are objected to, as Figure 9 does not contain a reference number 200. Applicants enclose herewith an amended sheet of drawing adding reference number 200 to Figure 9, thereby obviating any further objection thereto.

In sections 8-10 of the Official Action, the Examiner notes that the reference numbers in Figure 6 do not include the number 26, and the Examiner suggests that the number should read 46 in the application. The Examiner is correct and Applicants have amended the reference in the specification to refer to item 46 shown in Figure 6.

The above corrections to the specification do not require the resubmission of corrected formal drawings and therefore the replacement sheets submitted herewith are the only corrections to the drawings in this application.

Claims 1 and 5 are objected to, with the misspelling of "simulator" and Applicants have corrected the misspelling in both claims 1 and 5. Therefore, any further objection to the claims is respectfully traversed.

Claims 1, 2, 6, 7-12 and 14-16 stand rejected under 35 USC §103 as unpatentable over Hollander (U.S. Patent 6,182,258) in view of Platt (U.S. Patent 5,835,764). Independent claims 1, 15 and 16 have been amended to clearly recite that the claimed method (in claim 1), apparatus (claim 15) and computer program (claim 16) operate to model operation of a software component using a software simulator and to model operation of a hardware component using a hardware simulator. Applicants' claimed invention further links the two simulators so as to model interaction between the modeled operation of the hardware component and the modeled operation of the software component. In a perhaps more clearly specified apparatus and logic, Applicants' claims generate a software stimulus for the modeled software component and a hardware stimulus for the modeled hardware component and specify that the modeled interaction between the software component and the hardware component proceeds independently of the hardware and software stimulus provided by the test controller.

In order for the Hollander and/or Platt references to render obvious the subject matter of Applicants' independent claims 1, 15 and 16, it is necessary for there to be some disclosure of the method step of generating software and hardware stimuli so as to permit verification of correct interoperability of the software and hardware components. This is now clearly set forth in

Applicants' "generating" method step (iv), the "test controller" apparatus of claim 15 and the "test controller logic" of claim 16. Accordingly, it is necessary to establish where this method step, apparatus and logic are disclosed in one of the Hollander and Platt references in order to even establish a *prima facie* case of obviousness.

The Hollander reference has no concept of interaction between the simulated hardware components and the simulated software components as discussed in Applicants' claimed invention. Firstly, as stated in Hollander at column 10, lines 59-62, the test controller 166 provides input to both hardware and software components on a test-by-test basis and thus it does not suggest two separate structures. Secondly, all interaction between software and hardware is received as a request by the test controller, is interpreted and passed on (see Hollander column 10, lines 43-49) and thus there is little or no unprogrammed interaction possible. These potential interactions between hardware and software are only foreseen to occur at pre-designated points in the software (as specified in Hollander at column 10, lines 43-45, i.e., the so-called "pre-designated points"). Thirdly, it is clear from Figure 5 in Hollander that there is no direct interaction between the hardware simulation 170, i.e., the device under test, and the software 163.

As a result of the above, Hollander clearly fails to disclose the method step of "generating" during modeling of the software and hardware components and the interaction between the hardware and software components, both a software stimulus for the software component and a hardware stimulus for the hardware component. Additionally, Hollander clearly fails to disclose that the modeled interaction between the software component and the hardware component proceeds independently of the hardware and software stimulus. Therefore,

Hollander clearly fails to teach two separate aspects of Applicants' independent claims 1, 15 and 16.

The Examiner's admission that Hollander "fails to disclose a method where said software stimulus is passed to said software stimulator by issuing a remote procedure call" is also very much appreciated (see paragraph 17 on page 6 of the Official Action).

The relied upon Platt reference is not concerned with verification, whether of hardware or software, and instead deals with the entirely different problem of communication between software processes. As a result, Platt teaches the usage of remote procedural calls as a message passing means between processes in reduced kernel operating systems (see Platt at column 10, lines 11-14). There is no suggestion or recognition in Platt of any benefit in providing a co-verification environment and no teaching which would suggest to one of ordinary skill in the art how to modify or adapt the Hollander disclosure so as to implement remote procedural calls as a means of communication between separate and distinct verification language software domains and the target software domain.

In order to establish a *prima facie* basis of obviousness with respect to claims 1, 15 and 16, it is incumbent upon the Examiner to establish how or where each of the claimed method steps, apparatus elements or computer logic elements are disclosed in at least one of the cited prior art references. This the Examiner has not done. Additionally, even if the steps, structure and logic are shown in the separate prior art references (and this is not the current case), it is necessary for the Examiner to establish some "reason" or "motivation" for combining the cited references in the manner of Applicants' claimed invention. Again, the Examiner has failed to meet this requirement.

As a result of the above, not only do the Hollander and Platt references fail to teach all of the aspects of Applicants' independent claims, the Examiner has cited no "reason" or "motivation" which would lead one of ordinary skill in the art to combine these references as set out in Applicants' independent claims. Accordingly, there is simply no support for the rejection of independent claims 1, 15 and 16 over the Hollander/Platt combination and any further rejection thereunder is respectfully traversed.

Claims 3-5 stand rejected under 35 USC §103 as unpatentable over the Hollander/Platt combination, further in view of Campbell (U.S. Patent 6,408,009). Inasmuch as claims 3-5 ultimately depend from claim 1, the above comments distinguishing the Hollander and Platt references and their combination from independent claim 1 are herein incorporated by reference. The Examiner does not allege that the Campbell reference supplies that which is missing from the Hollander and Platt references, i.e., the co-verification environment and the generating of software and hardware stimuli during the modeling of software and hardware components where modeled interaction between the components proceeds independently of the software and hardware stimuli.

The Campbell reference contains a discussion of a completely different problem, i.e., detecting collisions on and controlling access to a communications channel. There is simply no allegation by the Examiner that Campbell supplies any missing method step, structure or computer logic set out in Applicants' independent claims 1, 15 and 16 and therefore even the combination of Hollander/Platt/Campbell fails to disclose the subject matter of Applicants' independent claims. Moreover, there is no allegation by the Examiner as to any "reason" or "motivation" for combining these three references in the manner suggested. Again, the Examiner

has failed to set out a *prima facie* case of obviousness of claims 3-5 over the Hollander/Platt/Campbell combination of references and any further rejection thereunder is respectfully traversed.

Claim 13 stands rejected under 35 USC §103 over the Hollander/Platt combination, further in view of Harmon (U.S. Patent 6,810,373). Inasmuch as claim 13 depends from claim 1, the above comments distinguishing claim 1 from the Hollander and Platt references, both singly and in combination, are herein incorporated by reference. The Examiner makes no allegation that the Harmon reference contains the teaching of the generating step as set out in claim 1, which step is missing from the Hollander and Platt references. Inasmuch as there is no allegation that this step is disclosed in any of the three cited references, the combination of Hollander/Platt/Harmon fails to withstand analysis.

Moreover, the Examiner has not identified any "reason" or "motivation" for combining the Hollander, Platt and Harmon references and therefore has failed to set out a *prima facie* case of obviousness under 35 USC §103. Any further rejection of claim 13 under 35 USC §103 over the Hollander/Platt/Harmon combination is respectfully traversed.

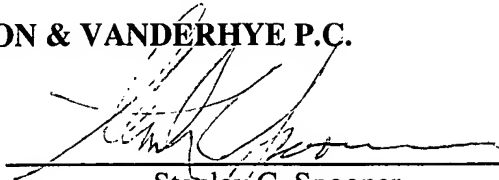
Having responded to all objections and rejections set forth in the outstanding Official Action, it is submitted that claims 1-16 are in condition for allowance and notice to that effect is respectfully solicited. In the event the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, he is respectfully requested to contact Applicants' undersigned representative.

NIGHTINGALE et al
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Respectfully submitted,

NIXON & VANDERHYE P.C.

By:



Stanley C. Spooner
Reg. No. 27,393

SCS:kmm
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100